

09/12/2008

DISTRIBUTED CIRCULAR GEOMETRY POWER AMPLIFIER ARCHITECTURE

ABSTRACT

The present invention discloses a distributed power amplifier topology and device that efficiently and economically enhances the power output of an RF signal to be amplified. The power amplifier comprises a plurality of push-pull amplifiers interconnected in a novel circular geometry that preferably function as a first winding of an active transformer having signal inputs of adjacent amplification devices driven with an input signal of equal magnitude and opposite phase. The topology also discloses the use of a secondary winding that matches the geometry of primary winding and variations thereof that serve to efficiently combine the power of the individual power amplifiers. The novel architecture enables the design of low-cost, fully-integrated, high-power amplifiers in the RF, microwave, and millimeter-wave frequencies.